On English Middle: its property reading and syntactic structure

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0. Introduction

There are so-called 'middle' constructions in English. The sentences in (1) are examples of middle constructions.

(1) a. Bureaucrats bribe easily.

    b. This dog food eats like meat.

    c. This book sells well.

This construction has two major peculiarities to it. First, the logical object (theme NP) appears in the subject position, in contrast to the way it is used in the transitive form (2).

(2) a. The candidate naturally bribed the bureaucrats.

    b. John eats this dog food every day.

    c. The clerk tried to sell this book, but failed.

In this sense, middles are similar to passives, which also have the logical object in the subject position.

Secondly, middle construction describes the property characteristic of the subject. For example, what (1b) means is something like "This dog food can be eaten in the same way we eat meat, not because of the

mustard sauce onit, but because of its innate properties (e.g. consisting of secret ingredients special to it)".

These two peculialities of the construction are the focus of discussion in this paper. There are two questions to be answered: (i) How does the logical object (theme NP) appear in the subject position [Spec,IP]? and (ii) How is the property reading given to the middle construction? Actually, the two questions are interrelated. The answer to (ii) will limit the range of possible answers to (i).

In section 1 we discuss the problem of derivation of the theme NP in [Spec,IP]. Either syntactic operation or lexical operation will turn out to have some defects to it. In section 2 we will consider the status of middle construction in terms of the predicate type. It will be found that the middle sentence, as a whole construction[1] is an individual-level predicate, while the verb itself is a stage-level predicate. In section 3 the structure for individual-level predicates is adapted to middles, and I will claim that the theme NP is base-generated in [Spec,IP] and it controls the PRO in the complement to the verb. Section 4 will argue for the existence of agent PRO in [Spec,VP] and complete the syntactic structure for middle constructions. Section 5 will provide concluding remarks on the results and take note of some residual problems.

1. Derivation of Middles
1.1. Middle formation via syntactic move-alpha

Since middle constructions have the thematic object NP in the syntactic subject position, they have been subject to an analysis similar to that of passives, i.e. syntactic derivation via move-alpha. Among those who pursue this analysis are Keyser & Roeper (1984), Hale & Keyser (1986), and Hoekstra & Roberts (1993). Although they vary in their view of the elimination of the subject role (through absorption process via

abstract clitic or through simple dethematization in the argument struc-
ture, etc.), they all depart from the following paradigm.

(3) a. e was killed John.   <-- move-alpha
    b. John was killed.
(4) a. e kill these chickens easily.   <-- move-alpha
    b. These chickens kill easily.

This derivation process of middles, parallel to that of passives, is not
readily rejected. For one thing, (4b) is closely paraphrasable as "These
chickens can be killed easily". Secondly, most middles seem to be
susceptible to the 'affectedness' condition set on passives (cf. Bolinger
1975 and Tenny 1987). However, no matter how many similarities there
are, there are many differences between the two constructions as well.
First, passivization applies to an expletive which is not the argument of
the predicate verb, while middle formation doesn't.

(5) a. We believe there to be three criminals in that drug ring.
    b. There are believed t to be three criminals in that drug ring.
    c.*There believes t easily to be three criminals in that drug ring.[2]
                                    (Carrier & Randall 1992:190)

Secondly, passivization can occur with a predicate containing a
stranded preposition, while middle formation is impossible in the preposi-
tion stranding context.

(6) a. Mary is someone who can be confided in.
    b. The politician was laughed at.
(7) a.*Mary confides in t easily.
    b.*Politicians laughs at t easily

Thirdly, middle sentences are ill-formed when their subject is 'dative' (goal) NP.

(8) a. The orphans were given presents at Christmas. b. These children were taught by their own parents.

(9) a.*Orphans give presents easily at Christmas.

b.*These children teach easily.

((9a) from Tenny 1987:62, and (9b) from Hoekstra & Roberts 1993: 202)

Faced with the above differences, one might assume that these differences should be ascribed to some peculiarity of middles, not to the different derivational processes operating in the two constructions. But at the same time, we have good reason to believe that some process different from passives is involved in middles. I take the latter position here and simply conclude that syntactic move-alpha is not the relevant process in generating middle constructions.

1.2. Middle formation via lexical move-alpha

It has been claimed that move-alpha in the lexicon (or argument structure) is involved in deriving middles (Hale & Keyser 1987 and Fagan 1988, 1992). Irrelevant details aside, the claim is that the theme NP is already in the external argument (subject) position before lexical insertion. Therefore, there is nothing, even a trace, in the direct internal argument (object) position in syntax. If this were the case of middle formation, the middles containing resultatives as below would remain without explanation.[3]

(10) a. This metal hammers *flat* easily.

   b. Chickens broil up *delicious*, believe me.

   c. My socks won't scrub *clean* easily.

   ((b) from Napoli 1993:124, (c) from Carrier & Randall 1992:191)

On the standard assumption, a resultative predicate as *flat*, *delicious* or *clean* in (10) should appear VP-internally and be in a very local relation, i.e. in the mutual c-command relation to the host NP. That resultatives can be predicated of only NPs within VP is proved by the following pair.

(11) a. John ate the hamburger *full*.

   b. John fed the pigs *full*.

Assuming that the adjective *full* in this sense can only refer to animate referents, (11a) can only read "When John ate the hamburger, he was full". There is no resultative interpretation of (11a) such as "John ate the hamburger and he became full". On the other hand, (11b) receives a resultative reading such as "John gave some leftover to his pet pigs and they became full." This indicates that the NP hosts in (10) do not license the resultatives in the derived position [Spec, IP], but in their original position sister to V. Therefore, if the object position, in which the theme NP is supposed to appear, is not projected in the syntactic structure in the first place, then the resultatives in (10) should not be licensed and the sentences should prove ungrammatical, which is not the case. Because of this, against Fagan (1988), Carrier & Randall (1992) insist on the involvement of syntactic movement in deriving middles and claim that the trace of moved theme licenses the resultaive.

It is true that the idea of lexical movement of the theme NP is untenable because of the fact concerning resultatives as shown above.

However, this doesn't readily mean that only syntactic movement analysis can solve the problem. Some implicit element in the object position will do, as well as the trace left behind after movement to license the resultative. I will develop the former idea.

1.3. Summary for the derivation problem

In 1.1. along with Fagan (1988, 1992), I cast a doubt on the treatment of the derivation of middles as parallel to that of passives, i.e. derivation via move-alpha in syntax, pointing out the differences between the two in the range of application. In 1.2. I reach a conclusion, along with Carrier & Randall (1992), that the derivation of middles via lexical move-alpha is not warrantable because of the existence of resultative middles.

Hence, I do not endorse either analyses. Nor do I pursue another movement analysis. One possible analysis which accomodates the above apparently contradictory conclusions is to posit a structure in which the theme subject is originally generated in [Spec,IP] and some implicit element in the object position for licensing resultatives. The structure should also relate the two positions. In section 3, it will be shown that this structure is compatible with, or rather an extension of the structure advanced by Diesing (1992) for 'individual-level predicates'. In the next section, we argue how middles should be analyzed in terms of the two predicate types: stage/individual-level.

2. Middles and the two types of predicates
2.1. Stage/individual-level predicates

Since the earlier study of distinguishing predicates such as Carlson (1977), it has been noticed that there are two distinct types of predicates:

stage-level predicates vs. individual-level predicates.

(12) a. Linguists are intelligent.

     b. Linguists are available.

    With the bare plural NP subjects, these two sentences yield a generic reading (12a) and an existential reading(12b), respectively.[4] This is considered a reflex of the type of predicate each sentence contains. *Intelligent*, as an individual-level predicate, denotes more or less inherent, permanent properties of the entity. *Available*,as a stage-level predicate, denotes more or less temporary, transitory properties of the entity.

    Actually, this stage/individual-level distinction of predicates becomes a crucial factor in several grammatical phenomena. One such is *There*-construction.

(13) a.*There are linguists *intelligent*.

     b. There are linguists *available*.

    While the stage-level adjective *available* can appear in *There*-construction, as in (13a), the individual-level adjective *intelligent* is not allowed, as in (13b). One other phenomenon which is affected by the stage/individual distinction is the licensing of secondary predicates. Rapoport (1991) points out that only stage-level predicates either license or are licensed in the secondary predication relation through their 'event-structure' (for details, see Rapoport 1991).

(14) a. Roni bought the dog *sick*.

     b.*Roni bought the dog *intelligent*.

(15) a. Noa cooks chickens *young*.

b.*Noa owns chickens *young*.

<div align="right">(Rapoport 1991:166-9)</div>

In (14a) because the adjective *sick* is a stage-level predicate, expressing a more or less temporary, transitory property, it can appear as secondary predicate. On the other hand, in (14b) the adjective *intelligent*, as an individual-level predicate, expresses an inherent or permanent property, being excluded from secondary predication relation. The same restriction applies to main predicates. While the verb *cook*, a stage-level predicate, licenses the adjective *young*, also a stage-level, as secondary predicate as (15a), the verb *own*, an individual-level predicate, doesn't as (15b).

2.2. Middles as a two-layered predicate

In 2.1. we considered two phenomena which are susceptible to stage/individual-level distinction of predicates, i.e. *There*-construction and secondary predication. Now that we have the correspondence between the predicate distinction and the two grammatical phenomena, we can use the grammaticality of middles in *There* sentences and in sentences with secondary predicates to determine which predicate type middles belong to. First, observe the following sentences.

(16) a.*There are bureaucrats bribing easily.　　(Matsumoto 1993:8)

　　b.*There translate easily many Greek texts at this university.[5]

<div align="right">(Fellbaum & Zribi-Hertz 1989:12)</div>

The ungrammaticality of the sentences in (16) suggests that middles have the semantics of individual-level predicates.[6] This is expected since middle is the construction that denotes some inherent or permanent

property of the subject. Next, observe the following sentences.

(17) a. This bread won't cut *hot*.

    b. Maple won't split *frozen*.

<div align="right">(Hale & Keyser 1987:13)</div>

Here, we have secondary predicates *hot* and *frozen* licensed in the middle sentences.[7] This means that the verbs used in middle per se, not the whole construction, are stage-level.

A brief summary: in terms of the predicate status, we can say that middles, as a whole construction have the semantics of individual-level predicates, whereas verbs used in middles are stage-level predicates. This two-layered predicate structure of middles will be relevant when we consider adopting Diesing's (1992) structure for individual-level predicates and apply it to middles.

3. Property reading, INFL assigning a semantic role, and the syntactic structure of middles
3.1. Diesing's (1992) proposal

We observed above that two sentences in (12) with the same bare plural NP subject can be construed differently, depending on the type of predicates. We repeat (12) here as (18).

(18) a. Linguists are intelligent.

    b. Linguists are available.

(18a) receives the generic reading, while (18b) receives the existential reading as a reflex of the fact that *intelligent* is an individual-level predicate, whereas *available* is a stage-level predicate. But this state-

ment is not simply correct. In fact, as Diesing (1992) points out, (18b) has two other generic readings, besides the existential reading.[8] Therefore, 'genericity' is not the concept only for individual-level predicates. The term that is appropriate when we distinguish the two predicate types seems 'property'.[9] Here we take 'property' to refer to a characteristic which is more or less permanent or inherent to an entity. According to the characteristics of each predicate type in 2.1., the property reading is characteristic of the sentence with an individual-level predicate, not of a stage-level predicate. Therefore, the sentence which includes an individual-level predicate like (18a) receives the property reading, as well as the generic reading. On the other hand, the sentence which includes a stage-level predicate like (18b) receives either the existential or generic reading, but even when it receives the latter, it has no property reading.

   Diesing (1992) is an attempt to explain these interpretive differences between predicate types in structural terms. Her proposal is that these differences originate in the different ways the subjects of the two types of predicates are mapped into LF structure. According to Diesing, the whole VP corresponds to the nuclear scope, where a variable is bound by the existential closure, whereas the whole IP other than VP corresponds to the restrictive clause, where a variable is bound by the generic operator *Gen*. Important of all here is the assumption that INFL of individual-level predicates assigns a theta-role to [Spec,IP], which "has roughly the meaning 'has the property x', where x is the property expressed by the predicate." (Diesing 1992:26) This ensures that the subject of an individual-level predicate is base-generated in [Spec,IP] and that the sentence receives the property reading. A 'PRO', which is controlled by the subject in [Spec,IP], is generated in [Spec,VP]. Since INFL of stage-level predicates does not assign that theta-role, the subject is generated in [Spec,VP] and moves up to [Spec,IP] for Case.

With these apparatus, we can explain all the interpretative facts noted above under the following D-structures for both types of predicates.

(19) a. D-structure of individual-level predicates

$$[_{IP}NP_i \; INFL \; [_{VP}PRO_i \; V \; ... \;]]$$
$$\underbrace{}_{\theta}$$

b. D-structure of stage-level predicates[10]

$$[_{IP}e \; INFL \; [_{VP}NP \; V \; ... \;]]$$

What should be focused on here is the INFL assigning 'has a property x' theta-role[11], which ensures the property reading of individual-level sentences, which middles are a member of.

3.2. Application to middle constructions

My idea is to apply the syntactic structure for individual-level predicates in Diesing (1992) to middle constructions.[12,13] We are already familiar with the fact that middles (more exactly, I' category of middles) have the semantics of individual-level predicates. The D-structure of (20 a), therefore, is something like (20b) with positional difference of PRO from that of (19a) appearing in [Spec, VP].

(20) a. This bread cuts easily.

b. $[_{IP}$This bread$_i$ INFL $[_{VP}$V PRO$_i$ easily $]]$
$$\underbrace{}_{\theta}$$

The theme subject NP *This bread* is generated in [Spec, IP] and is given the theta-role 'has the property x' by the INFL. This assures the property reading of middle constructions. It also controls the PRO in the

complement position of V, where the theme NP normally appears in the transitive context. There is no movement relation between [Spec,IP] and the complement position of V, but a control relation. This is desirable. Remember the conclusion about the derivational processes of middle constructions. The facts seemed to suggest that the theme subject is base-generated in [Spec,IP] and at the same time, somehow licenses the resultative predicate via a local relation to it within VP. This is expected, if we adopt the structure (20b) for middles. See (21b) below.

(21) a. This metal hammers *flat* easily.
  b. [$_{IP}$This metal$_i$ INFL [$_{VP}$[$_{V'}$ hammers PRO$_i$ flat]
    easily]

The resultative is licensed by the PRO sister to V, which is controlled by the NP in [Spec,IP].

Here we have to remember that middles are two-layered with respect to predicate types: middles, as a whole construction, should be individual-level, whereas the verb itself should be a stage-level predicate. Verbs which are individual-level cannot be used in middle constructions. See the following ungrammatical middles with individual-level verbs like *know* and *own*.

(22) a.*French knows easily.
  b.*Poodles own easily.

According to Diesing (1992), however, if INFL assigns 'property' theta-role, the predicate is always individual-level as noted above. Therefore, the sentences in (22) should be well-formed middles. Remember also that verbs used in middles are stage-level. These facts suggest that we have to give up the one-to-one correspondence between the type

of INFL and the type of predicate as advanced in Diesing (1992) to explain the case of middles. I also believe that we find elsewhere sentences which yield the property interpretation with stage-level verbs. Hence, we amend Diesing's statement and posit the following for assuring the proprty interpretation of a sentence.

(23) In a sentence which describes some sort of property of the subject, INFL assigns to NP which is base-generated in [Spec,IP] a theta-role 'has a property of x', where x is the property expressed by the predicate.

Given (23), we can ensure the structure (20b) for middles, where the subject NP is base-generated in [Spec,IP] and is assigned a theta-role 'has a property x', where x is the property expressed by the rest of the sentence.[14] We can further explain the two-layered predicate status of middles: verbs used in middles are stage-level, whereas constructions as a whole have the semantics of individual-level predicates. This is because of the appearance of INFL assigning the 'property' theta-role in middles, which converts a stage-level predicate into an individual-level predicate. A similar analysis of the predicate-type conversion (with the opposite direction) is advanced in Stowell (1991) for what he calls 'MP' adjectives.

As for the ill-formed middles with individual-level verbs as in (22), I should refer to the aspectual distinction of verb types. It has been pointed out that only activity (process) and accomplishment verbs can enter middle formation, while achievement and state verbs cannot (cf. Fagan 1992). This paradigm seems to be a result of how the 'effect' of an activity is profiled as a 'property' (cf. Inada 1994). Since most individual-level verbs like *know* and *own* are state verbs, the sentences in (22) are excluded.

In any event, the fact that we need to say something special in deriving middle constructions (i.e. predicate-type conversion with the help of INFL) implies that the label 'middle' is not simply a notional category as insisted in Condoravdi (1989).

3.3. On theme NP base-generated in [Spec,IP] and PRO in the complement position

First, we discuss the validity of the theme NP in [Spec,IP] in the structure (20b). We claimed above that it is base-generated in that position. One support appears to be available in the interpretative analysis of the adverb *well* advanced in Lakoff (1977). See the following sentences.

(24) a. John drove the car well.
    b. The car was driven well.
    c. The car drives well.

(Lakoff 1977:250-1; with a few minor modifications)

According to Lakoff, in (24a) and (24c) aspects of driving well refer to the contribution made by the subject. In (24a) the agent subject John's techniques of steering, accelerating and braking do matter in driving well. In (24c) properties of the car, the patient subject, concerning steering, accelerating and braking are given focus in good driving. On the other hand, in (24b) *well* does not modify the properties of the car, the subject of passive, but rather the abilities of the implicit drivers. With these facts, Lakoff concludes that the patient subject in (24c) is an underlying (i.e. base-generated) subject along with the agent subject in (24a), while the patient subject in (24b) is a derived subject. Setting aside what the condition on interpreting the adverb *well* would be like in

the present framework, I agree with Lakoff's conclusion and qualify it to support the base-generation of the theme NP of middles in [Spec,IP].

Next, we will take up the question of the PRO in the complement position. If we admit the existence of PRO in the complement position in the structure of middles like (20b), the PRO will be governed. This is against the PRO theorem which requires that PRO be ungoverned. The same problem arises in Diesing's structure for individual-predicate, where PRO appears in [Spec,VP]. According to Diesing (1992:26-7), there seem to be two types of solution to this: either to claim that PRO may be governed in English or to claim that PRO is driven to move to some ungoverned position outside VP. In any event, the distribution of PROs is not an easy matter, considering, for example, the licensing problem of secondary predicates. But if we adopt the Case-checking system of the minimalist approach and further assume that PRO need (or must) not be Case-checked, the appearance of PRO in complement position or [Spec,VP] should raise no problem. If this were the case, as a spin-off, the mystery of ungrammatical middles in preposition stranding contexts automatically disappears.

(25) a. *Politicians laugh at easily.

b. $[_{IP}$Politicians$_i$ $[_{VP}$laugh at PRO$_i$ easily]]

In (25b) PRO appears sister to the preposition *at*. If incorporation of a preposition to a verb coincides with move-alpha (or -*en* morphlogy), the preposition *at* is taken to still have its Case-assigning property in (25). Then in (25) it assigns the oblique case to its sister PRO, leading to the ungrammaticalty. This also explains the grammaticalty in usual PRO contexts.

(26) a. It is easy for John to speak French.

b. It is easy PRO to speak French.

c.*It is easy for PRO to speak French.

3.4. Summary

In 3.1. we we saw how Diesing (1992) assigns different syntactic structures to different predicate types: stage/individual-level predicates. In 3.2. we considered an extension of Diesing's structure for individual-level predicates in applying it to middles, admitting the existence of an INFL assigning a theta-role which means 'has a property x'. In 3.3. it was pointed out that the difference in interpretation of *well* suggests the base-generation of a middle subject in [Spec,IP], unlike a passive subject. We also considered the status of PRO in the object position, concluding that although it might raise problems with respect to government or Case, it straightforwardly explains the thus-far mysterious ungrammaticality of middles with stranded prepositions.

Now we have the following structure for middle constructions.

(27) *The D-structure of English middles* (tentative)

$[_{IP}NP_i \text{ INFL } [_{VP}V \text{ PRO}_i \text{ (ADV) }]]$
θ

The next section will discuss whether the implicit agent argument occupy some position in syntax and claims its existence in [Spec,VP].

4. Implicit argument in [Spec,VP]

One difference between the middle sentence (28a) and the ergative sentence (28b) is whether the existence of agent argument is implied or not.

(28) a. This book sells easily.

     b. The door opened.

(28a) is said to have an interpretation like "People, in general, can sell this book easily", where the agent argument is generic or arbitrary in reference. On the other hand, (28b) has an interpretation, where no agent is implied. This point will be explicit when we consider the compatibility of these sentences with the two particular adverbial phrases, *all by itself* and *without effort*.[15] The former implies that no further entity is involved in the event described, whereas the latter implies the involvement of an entity making efforts, i.e. an agent. See the sentences below.

(29) a.*This book sells easily *all by itself*.

     b. The door opened *all by itself*.

(30) a. This book sells easily *without effort*.

     b.*The door opened *without effort*.

While the middle cooccurs with *without effort*, which implies the involvement of the agent, the ergative does not. The ergative coocurs with *all by itself*, which implies no involvement of the agent, while the middle does not. Judging from these facts, we can safely conclude that unlike ergatives, middles include an agent-bearing entity, which is generic or arbitrary in reference, at least semantically. Then the next question to ask is whether that entity occupies some syntactic position.

One possible solution to this question is supplied by Projection Principle, which requires every element appearing in one syntactic level to also appear in the other levels (cf. Hoekstra & Roberts 1993). If the licensing of adverbial phrases is affected via the existence of an implicit agent NP at LF, it follows from Projection Principle that the implicit agent NP should also appear at DS and SS.

Besides this simple argument, we can consider phenomena which, on the standard assumption, require syntactically present arguments for licensing. Relevant here are secondary predication and control. First, we consider secondary predication. See the following two sentences. In (31 a) *naked* is supposed to be predicated of the person who wash the floors, while in (31b) *unaided* is supposed to refer to the person who fixes the car.

(31) a. *These floors wash best *naked*.
　　 b. The car fixes easily even *unaided*.
　　　 (cf. *The car broke *unaided*.)
　　　 ((a) from Hoekstra & Roberts 1993:192, (b) from Matsumoto 1994:87)

We have a discrepancy here. However, this may be a result of the property of middles. As noted throughout, they are constructions where the 'property' of the subject is described. Therefore, VP should be a predicate expressing that property. Actually, to decide what can be a 'property' of x is not an easy matter. It should be sensitive to the knowledge of the outer world. Nevertheless, we feel that it is more reasonable to take "fixing easily unaided" as a property of a car than to take "washing best naked" as a property of a floor. Hence, the discrepancy. Therefore, we conclude that secondary predicates are basically allowable in middle constructions. If the licensing condition on secondary predicates are mutual m-command with the host NPs (cf. Nakajima 1990), there must be an implicit NP, which I take 'PRO'[16], in a position where it is in a mutual m-command relation to *unaided*. One possible position is [Spec, VP], where, under the strongest VP-internal subject hypothesis, the agent NP is supposed to appear.

Next, let us consider control relation. First, we consider the control

into 'purpose' clause. Observe the following pair.

(32) a. Bureaucrats were bribed PRO to keep them happy.
　　 b.*Bureaucrats bribe easily PRO to keep them happy.

　According to the prevailing argument, because the passive (32a) has an implicit agent in syntax, PRO of the purpose clause is controlled by it and the sentence becomes well-formed. On the other hand, because of the lack of an implicit agent in syntactic structure of middles, PRO in (32b) cannot be controlled and the sentence becomes unacceptable. Contrary to this claim, however, Fellbaum & Zribi-Hertz (1989) point out that unacceptablity of middles with a purpose clause is due to its incompatibility with the property interpretation of middles, not to there being no (agent) controlling argument in syntax.

(33)?* The earth is round in order to rotate around the sun.
　　　　　　　　　　　　　　　(Fellbaum & Zribi-Hertz 1989:27)

Despite the existence of the overt controller *The earth*, in (33) the sentence sounds anomalous. Therefore, the contrast (32) does not necessarily deny the existence of an implicit agent in middle constructions. Consider, then, the control into *without* and *by* clauses.

(34) a. These books sell easily without PRO putting them in the window.　　　　　　　　　　　(Vinet 1988:430)
　　 b. The socks dry out easily by PRO hanging them up.
　　　　　　　　　　　　　　　(Tenny 1987:219)

　Well-formedness of the middles in (34) suggests that implicit agents of middles are present in a syntactic position from which they control into

adjunct phrases.[17,18] If we take *without* or *by* clauses to be VP-adjuncts, implicits agents can control PROs of the adjuncts from [Spec,VP].

Consideration of secondary predication and control assures us the existence of agent argument in the syntactic structure of middles. Now we add the agent PRO to the structure of middles and revise (27) to (35).

(35) *The D-structure of English middles* (revised)

$$[_{IP}NP_i \; INFL \; [_{VP}PRO \; V \; PRO_i \; (ADV)]]$$
$$\overset{\theta}{\underset{}{}}$$

This is the structure that I propose for middle constructions in English.

5. Conclusion

We have concentrated on the problem of what structure is given to English middles and finally proposed a structure (35). I think that admittance of INFL assigning a 'property' theta-role advanced in Diesing (1992) can bring fruitful results to the analysis of sentences that receive the 'property' interpretation, one of which is English middle. Controversies among the lexical/syntactic derivations of middle disappeared. Middle subject is base-generated in [Spec,IP] and the verb remains transitive at the time of lexical insertion. Two PROs appear in [Spec, VP] and in the complement position of V, playing roles in a few syntactic phenemena.

Several tasks remain. One is the licensing mechanism of PRO. What condition is placed on PRO? Does it simply not have to be Case-checked or need to have 'null case' checked? Why can only PROs be the arguments of the middle verbs?[19] Secondly, how should the system adopted here be incorporated into the standard split INFL (Agr-Tense) system of the minimalist approach? Is the role-assigning property of INFL taken over

by Agr, Tense, or some other unknown head? And a third problem is the existence of middle-like constructions (sometimes addressed as 'pseudo-middles') whose subject is 'instrument', not 'theme'.[20]

(36) a. This knife cuts well.

   b. This pen writes well.

   c. This gun shoots well.

   How are these sentences generated? Are these assigned a structure similar to middles? These questions are all challenging as well as interesting. In any event, in order to answer them, we will need further research.

NOTES

1. Notice that the phrase 'as a whole construction' is loosely used here. It should be taken as a convenient alternative to 'IP except for its Spec, or I'.

2. Because the verb *believe* is considered more of a stative, than an eventive verb, someone might blame the ungrammaticality of (5c) on that fact. However, according to Carrier & Randall (1992), this is not the case. The following sentence is, though not perfect, acceptable.

   (i) Teary-eyed witnesses believe easily.   (Carrier & Randall 1992:190))

3. There are verbs which cannot enter middle formation without resultatives.

   (i)   a.*The metal hammers easily.

      b. The metal hammers flat easily.

   This might also suggest that middle formation is a syntactic operation, unless the

verb-resultative pair gives rise to a complex verb (e.g. via argument structure fusion) before lexical insertion in the syntax.

4. To avoid unnecessary complexities irrelevant to our concern here, I make the matters somewhat simpler. Actually, (12b) is also subject to a generic reading, in addition to the existential reading. See note 8.

5. The equivalent French sentence is well-formed, according to Fellbaum & Zribi-Hertz (1989).

 (i) Il se traduit facilement beaucoup de textes grecs dans cette université.

(Fellbaum & Zribi-Hertz 1989:12)

Actually, French middles do not show property interpretation, contrary to English middles.

6. Middle constructions share some other properties with the sentences where individual-level predicates like *know* are used. For example, neither can appear in the progressive nor do they appear in the imperative forms.

 (i) a. *Bureaucrats are bribing easily.

 b. *John is knowing the answer.

 (ii) a. *Bribe easily, bureaucrat!

 b. *Know the answer, John.

(Keyser & Roeper 1984:385)

7. Secondary predicates are not well-accomodated in middles, when they appear to the left of adverbs.

 (i) a. ??This bread cuts hot easily.

 b. ??Maple splits frozen easily.

(Hale & Keyser 1987:13)

This might perhaps have something to do with the property reading of middles. Secondary predicates only describe the situation in which the event that the verb denotes happens. On the other hand, the adverb *easily* expresses the easiness in executing the event which the verb denotes. Therefore, we can say that *hot* and *frozen* contribute less than *easily* in making a proposition which denotes a property of the subject, in combination with the verbs *cut* and *split* respectively. The intervention of a secondary predicate between the string of a verb and an adverb, both contributing to a predicate which denotes a property of the subject, thus leads to the degraded acceptability. In contrast, the appearance of secondary predicates to the right of adverbs yields well-formed middles.

(ii) a. This bread cuts easily (,) hot.

b. Maple splits easily (,) frozen.

(Hale & Keyser 1987:13)

8. According to Diesing (1992), (18a) has only one interpretation, whereas (18b) has three possible interpretations. (i) is the logical representation for (18a) and (iia -c) are the logical representations for the three readings of (18b).

(i) Gen_x [x is a linguist] x is intelligent

(ii) a. $\exists_x$ x is a linguist & x is available

b. $\text{Gen}_{x,t}$ [x is a fireman & t is a time] x is available at t

c. Gen_t [t is a time] $\exists_x$ x is a fireman & x is available at t

For details, see Diesing (1992).

9. Genericity seems to me to come from (indefinite) plurality of NP or its arbitrariness in reference. Hence, it is not essentially connected with the concept of property. In fact, it has been suggested that the generic reading and the property reading should be distinguished. See Fellbaum & Zribi-Hertz (1989) and Matsumoto (1993) for further information. If the generic reading is possible for middles, it may be due to the existence of arbitrary agent argument. See section 4.

10. As to how exactly the system for yielding generic/existential interpretations on the basis of these structures, see Diesing (1992).

11. Why is it INFL that assigns the 'property' theta-role? This may be because modality seems relevant in the property interpretation of a proposition. See note 14 and 18. In fact, the head INFL used to be AUX, where modal auxiliaries were present.

12. Matsumoto (1993) independently applies Diesing's structure for individual-level predicates to middles in a different tree structure provided by what they call 'REIP' analysis. For details, see Matsumoto (1993).

13. The possibility of applying Diesing's structure for individual-level predicates to middles is already pointed out in Inada (1993). He adopts the structure in the analysis of what he calls 'pseudo-passives'. See Inada (1993) for further discussion.

14. Therefore, the following grammatical contrast emerges.

(i) a. This applesauce will digest rapidly.

b.*This applesauce will eat rapidly.

(van Oosten 1977:462)

As van Oosten (1977) points out, for rapid digestion, the property of the food to be digested really matters, while for rapid eating, what matters is the ability of the person who eats the food. Hence, the predicate in (ib), unlike (ia), cannot be said to describe the 'property' of the subject.

The fact that most middles should cooccur with adverbials (ii), auxiliaries (iii), negative elements (iv), or contrastive stress (v), also seems to follow from the same reasoning: the predicate should be qualified to denote some property of the subject.

(ii) a. This book sells well.

   b. *This book sell.

(iii) a. This floor might wax.

   b. *This floor waxes.

(iv) a. This dress won't fasten.

   b. ??This dress fastens.

   (cf. This dress buttons.)

(v) a. This bread CUTS!

   b. *This bread cuts.

Only predicates that express a certain property of the subject is licensed in middle constructions. This is a natural consequence of the appearance of INFL assigning a role 'has a property of x' in middles.

15. This was pointed out in Inada (1994).

16. Hoekstra & Roberts (1993) argue for the implicit agent of middles as *pro* for independent grounds.

17. Incidentally, why control into purpose clause is impossible, whereas control into *by* and *without* clauses is possible in middles? Fellbaum & Zribi-Hertz (1989) simply notes that purpose clause is incompatible with the main clause that has the property interpretation. This statement seems somewhere near the answer, but is still not sufficient. My feeling is that a sentence describes a property of the subject by the predicate that the whole rest make up together, i.e. the main clause other than the subject and the adjunct clause, if any. Here we should remember the 'cause-effect' chain of events. Effect always follows or is preceded by cause. Let us, then, consider which side of the chain the above clauses belong to? Because purpose clause denotes the proposition which someone expects to attain as a result of being in the state of x or of doing x, it belongs to the effect

side. On the other hand, *by* and *without* clauses denote the way, manner, or instrument in being in the state of x or in doing x, so they are on the side of cause. Therefore, if the predicate denoting a property of the subject should consist of elements that belong to the side of cause, the contrast in acceptability between purpose clause and *by* and *without* clauses in middles follows. The reason that a purpose clause cannot appear in the middle is that an element, which should not be included in the predicate denoting a property of the subject, is wrongly included in it.

18.　It should also be pointed out that there are acceptable middles with a purpose clause, when they appear with a modal auxiliary *must*.

(i)　a.　This car must sell quickly in order to clear the lot.

　　b.　This blouse must wash very easily in order to be able to wear it so fast.

(Vinet 1988:432)

(33)　in the text will naturally improve with the help of *must* as well.

(ii)　The earth must be round in order to rotate around the sun.

　　The difference between (33) and (ii) is that in (33) the purpose clause looks as if it were included in the predicate denoting the property of the subject, while in (ii) it is not. That is, in (33) the predicate denoting the property of the subject seems to be taken as "being round in order to rotate around the sun", which is a predicate made up of incompatible members, as noted in note 17. While in (ii) it seems to be only "being round" as usual. This statement becomes clear when we consider Japanese equivalents to (33), (ii) and (ib).

(iii)　a.　chikyuu-wa taiyoo-no mawari-o kootensuru tame-

　　　　{?ni/*ni-wa}　marui

　　b.　chikyuu-wa taiyoo-no mawari-o kootensuru tame-

　　　　{ni/ni-wa}　maruku-nakerebanaranai

　　c.　kono burausu-wa hayaku sore-o ki(re)ru tame-

　　　　{?ni/ni-wa}　hijooni kantanni araenakerebanaranai

　　Since *wa* is a topic marker, it strips off the clause marked with it from the rest of the proposition. In any event, what (ib) says is that the property 'washing very easily' is the prerequisite for the existence of the event 'wearing it so fast'. *Must*, therefore, somehow has a function of evicting that disharmonious purpose clause from the predicate denoting a property of the subject. How does the appearance of must yield this effect is far beyond the scope of this paper. The same effect of

must is also found in '*able*-adjective' and pseudo- (or lexical) passive construc-
tions, which usually receive the property interpretation.

(iv) a.*The island is uninhabited in order to preserve its soil.

b. The island must be uninhabited in order to preserve its soil.

(v) a.*This paper is not readable to print in this journal.

b. This paper must not be readable to print in this journal.

As for control, since lexical operations are considered to be involved in these constructions, we cannot assume agent PROs as a controller as in middles. Here I only suggest that the morphemes -*en* and -*able* which are supposed to absorb the agent role, will do the job.

19. Why no lexical NP appears in [Spec, VP] may be because its Case would remain unchecked, were it introduced in Syntax. Since [Spec, IP], where nominative case is checked, is already occupied, the lexical NP would find no spec pcsition, where it should be Case-checked. Therefore, the only element that can occupy [Spec, VP] is PRO, which need (or must) not be Cose-checked.

20. Hoekstra & Roberts (1993) suggest that these do not have to be treated as cases of middles for several reasons.

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